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# Case Study on Logistics Performance

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Abstract The paper presents research carried out at a medium-size manufacturing organization in east Asia. The study tries to highlight the importance of supply chain management; specifically, our aim for this study is to understand logistics and performance measurement in the logistics and supply chain, and we include a theoretical discussion of online data collected and a case study of the logistic performance of a real organization. The study also examines the performance of the selected company, identifies the problems and provides recommendations for improvements. This study can be a guide for business advisers and those interested in analysing company performance, especially from a logistics viewpoint. We also suggest the methodology of this case study for those who want to have a better understanding of a business environment before starting their own business, or for benchmarking practice during strategic planning.

Keywords Supply Chain, Logistics, Performance, Case Study

## 1. Introduction

Before we look into logistics and supply chain performance, we need to discuss Supply Chain Management (SCM). Logistics and supply chain performance are both involved in SCM. SCM is the coordination of logistics, location, production, and inventory, to name a few, in the supply chain. The systematic and strategic coordination of these functions achieves the best combination of efficiency and response to fulfil customers' demands. Moreover, the coordination of these business functions improves the company and its supply chain as a whole. 'A supply chain is a network of facilities and distribution options that performs the functions of procurement of materials, transformation of these materials into intermediate and finished products, and the distribution of these finished products to customers' [1].

The Council of Supply Chain Management Professionals (CSCMP) states that logistics is a part of the supply chain that plans, controls and implements the movement of the inventory, i.e., the goods and services, from the point of production to the end consumer. In the corporate world, logistics scope includes transportation, shipping, warehousing and import and export operations. In addition to these functions, logistics also handles inventory management, production planning and customer services [2]. The importance of performance in the supply chain is immense. An effective supply chain performance system can provide the basis to understand a company's supply chain system. It influences the supply chain's behaviour and, more importantly, it shows information regarding the

outcomes of the supply chain to the company and its stakeholders. Basically, supply chain performance plays a major role in the strategy of a company. It has been proved that well-executed supply chain performance system measures lead to improvements in the overall performance of a company [1].

Before 1990, logistics and supply chain performance was measured on a cost reduction basis. Measurements included the Tachograph, which measured a truck driver's speed, distance travelled and breaks taken. The lack of an appropriate performance measurement system has been a major obstacle to forming an effective supply chain. Companies in a supply chain have to decide to be either cost-efficient or time-driven. [3]. One contemporary way to measure the supply chain performance is in the form of metrics or Key Performance Indicators (KPI). The development of these KPIs should take place through the SMART goals (Specific, Measurable, Action-Oriented, Relevant & Timely), forming a balanced set, aligned with strategies and incentives, comprehensive and consistent. However, these indicators are more difficult to measure and compare [4]. Considering a full set of indicators could result in a huge amount of data, which would require a lot of effort and high costs both in acquiring and analysing. A solution to this would be to select the set of the most important indicators, keeping in mind the goals of the company. The analysis should be performed with caution so that the resulting set of indicators covers every relevant point of view [5].

## 2. Materials and methods

In this study we collect data from online resources, and based on these data we qualitatively analyse and discuss the performance of the supply chain in the selected company.

### *2.1 Selected Company*

As a class activity we searched online to find a company and study on available online data. The company selected for this research paper is Kian Joo Can Factory Berhad (KJCF), a company listed in 1984 that primarily deals with the manufacturing and distribution of general cans, aluminium cans, corrugated cartons, and PET products. It offers contract packing services (namely for milk powder and beverages), and also metal can printing [6]. KJCF has close to 20 subsidiaries registered under the group and these companies are either manufacturers or distributors that complement each other's businesses by supplying materials amongst the companies under the group [7].

## 3. Results and discussion

### *3.1 Supply Chain Relevance to Company's Operations*

The company's supply chain is vast, due to the fact that it caters for the local market and also exports to countries such as Japan, Myanmar, Indonesia, Thailand, Singapore, Taiwan, Australia, Philippines, and the Middle East [6]. In the Malaysian market, the group makes the largest share of revenue from its aluminium can manufacturing division, which would have a supply chain beginning with the sourcing of aluminium for the purpose of manufacturing cans, continue with transportation from suppliers to manufacturing plants and later to warehouses, and conclude with distribution to customer. Said [8] states that getting and keeping supply chain information is an essential task in any organization. In any manufacturing organization, the process flow involved, from acquiring raw materials right up to producing the finished goods, planning, monitoring and control are the main tasks, and the supply chain of their operations should include sharing of information throughout the chain, planning, resource synchronization and performance measurements [8].

KJCF has about eight manufacturing plants scattered around the states of Selangor, Negeri Sembilan, Johor, and even in Vietnam, which means the company would need to pay a great deal of attention to its supply chain and logistics as it needs to move around materials from one state to another and even to another country [6]. The company would need a competent supply chain manager to oversee the smooth flow of materials from point of sourcing to the point of delivery to customer. KJCF would begin its supply chain by receiving orders from companies manufacturing goods that require packaging in the form of aluminium cans. They would then finalize other aspects such as can dimensions and quantity required, and then work on the design to be printed on the cans [8]. The order would then be passed as an order form over to the manufacturing plant, which needs to ensure that inventory of raw material is sufficient to meet the orders (in the event of raw materials being insufficient, the factory would need to order the materials required and have them transported from the warehouse to the plant), then manufacture the cans in the quantity ordered. Upon completion of the manufacturing process, the cans would then be transported by road to another plant belonging to a subsidiary in another district for the purpose of printing designs according to the client's specifications onto the aluminium cans [8]. Cans which have been manufactured and printed with descriptions based on a client's requirements would then be transported to the client's plant either by road for local clients or by sea freight for international clients, where they will have their respective products filled into and sealed within the cans supplied by KJCF.

KJCF's supply chain is therefore very long and stretches from procurement of raw materials, to processing of the raw materials into semi-finished goods, to transporting semi-finished goods to clients, who then turn them into finished goods and market these to retailers or end

consumers. It is therefore vital for KJCF's supply chain manager to look into any form of shortage or disruption within the transformation process or logistics that could cause a stall in the process, which could translate into unnecessary losses.

*3.2 Analysis of Current Supply Chain Performance of KJCF*

In order to analyse the supply chain performance of Kian Joo Can Factory, we separated the measures into two broad categories, namely, Qualitative and Quantitative measures. Qualitative measures are based on quality and certificates gained by the company. Quantitative measures are based on numerical data, management and financial systems [9].

One quantitative method used to measure the supply chain performance of KJCF is the Warehouse Management System (WMS). The WMS is used to record all movements within the warehouse. All of the data is entered via the computer to the WMS database. The WMS database is available to all the employees. Data such as stock taking, container arrival and departure times, and employee check-in and check-out times are keyed into the database. The flow of this information through the company's database makes it easily accessible [6].

Another way to measure the supply chain performance is by maintaining the inventory turnover rate. An inventory turnover ratio measures the number of units dispensed in relation to the average unit inventory. A higher turnover ratio, together with desired inventory availability, demonstrates the effective use of resources for distribution of products throughout the supply chain [10]. For Kian Joo Can Factory, the inventory turnover is lower between the years. The company's efficiency ratio shows that KJCF had an inventory turnover 2.97 times lower in 2011. This indicates the company holds a high inventory; the fund that could be invested elsewhere would be held by the inventory [11]. Maintaining quantitative supply chain performance measures like this help KJCF reduce end production costs.

In terms of qualitative performance measures, KJCF boasts that nine of its main manufacturing subsidiaries are MS ISO 9001:2000 certified [6]. MS ISO 9001:2000 specifies the requirements for a quality management system whereby the organization has been demonstrating the ability to continuously come up with product/s that consistently meets the requirements of customers together with applicable regulations. Besides meeting the requirements of customers and regulations, the organization needs to aim at enhancing the satisfaction of customers by effective application of the system, which includes processes to ensure continuous improvement of the system and the assurance of conformity to customer and applicable regulatory requirements [12]. With such a certification, KJCF is deemed to be meeting all requirements which are related to customer satisfaction and regulations within the industry. In other words, KJCF strive to conform with any regulations and customer requirements which are related to their nature of business, and they also continuously work on improving the particular system which earned them the certification in the first place [6].

Secondly, two of KJCF's main subsidiaries, one of which deals in contract packing services (outsource packaging) has been awarded the certificate Hazard Analysis and Critical Control Points (HACCP) system, which is a scientific, rational and systematic approach for the identification, assessment and control of hazards in order to ensure that food is safe at the time of human consumption [13]. What this simply means is that KJCF places importance by its qualitative measurements for performance, as it sees the importance of achieving quality standards which aid in winning preference of clients, whether for aluminium can manufacturing or contract packing services (KJCF is the sole contract packing service provider for Dutch Lady milk powder in Malaysia) [6]. With the certification of HACCP system, customers and prospect customers may rest assured that KJCF practises high standards when dealing with the packaging of consumables.

*3.3 Recommendation to Improve the Supply Chain Performance of the Firm*

As analysed above, KJCF continuously strives to maintain their supply chain performance in the qualitative aspect, as was displayed when they received certifications for quality management such as the HACCP and ISO 9001:2000. In this aspect, KJCF could probably do better by obtaining other certifications available, for instance the ISO 28000, which is a standard which would require a firm to study the particular security environment in which it operates in order to establish whether sufficient security measures are taken in order to identify and comply with the relevant regulatory requirements [9]. With the certification of such a standard, KJCF would be able to assess the need for security in its processes and come up with mechanisms and processes to meet these needs. Butcher [9] explained that ISO 28000 is based on the methodology of plan-do-check-act, which basically documents how a firm should identify objectives to deliver results in accordance with the firm's security policy, implement such a process, monitor and measure the processes against security policies, targets, and other requirements, and finally continually improve the performance of the security management system.

Secondly, KJCF could implement the concept of sharing data amongst trading partners, which would aid in management of data such as product data, sales data,

inventory data and promotion data [14]. With the sharing of data among trading partners, KJCF would be able to transfer data across the supply chain, which would then enable processes such as Global Data Synchronization (GDS), Continuous Replenishment Process (CRP) and Collaborative Planning, Forecasting and Replenishment (CPFR) [14]. As most of the subsidiaries under the KJCF trade among companies within the group, it would be far easier for the group to implement the sharing of data, which could help in improved time management through increased efficiency, being able to properly forecast demand and supply, which would lead to better planning, and most importantly cost reduction in the form of communication costs, administrative costs, and an improved flow of information between trading partners.

Another recommendation the firm could consider would be to start implementing lean manufacturing techniques such as Just-In-Time (JIT), which is basically having the right amount of raw materials delivered for manufacturing at the right place at the right time with no surplus to be turned into inventory [15]. If KJCF were to implement JIT manufacturing across its manufacturing plants, KJCF would be able to dramatically lower costs associated with the holding inventory of raw materials. KJCF would need to establish with their suppliers that they would want just the right amount of raw materials to arrive as and when they are needed in order to ensure the smooth flow of production with the reduced cost of holding inventory. In order to ensure such a method is successfully implemented, the firm would need collaboration from every supplier involved in the supply chain and have every party working towards this lean mode of manufacturing. This could help turn the production process into one which is more efficient, helping to lower costs, which in turn would translate to higher profits.

## 4. Conclusion

Logistics and supply chain performance is a vital aspect in the supply chain management of any organization today and with the age of globalization, competition has taken the world stage. It has become a state of survival of the fittest. Firms which hope to continuously be in the game and compete with others need to consistently evaluate their logistics and supply chain performance to ensure that it is at its optimum level, and should always make improvements where necessary.

Certainly, this study has many limitations, as our data collection was online only, and the company has many other activities regarding to its supply chain management which have not been published online. This study was only a class practice to analyse the supply chain and performance of companies. The class objective was to practise critical thinking on logistics, performance and supply chains. Our recommendations were based on our knowledge gained from our class. The recommendations should be discussed at management level in a company to decide whether they can be applied or whether the company already practises them. The company may face some other approaches that lead them to better decisions further to our recommendations, as their experience is more practical than our experience.

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